

# HEADACHE CHARACTERISTICS IN ACUTE CEREBRAL BLOOD FLOW DISORDERS WITH GOOD PROGNOSIS

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## ABSTRACT

The diagnostic difficulties in patients suffering from headache as an only symptom of cerebrovascular disease with good prognosis are significant. The responses of 204 patients with severe headache to leading standard questions were prospectively studied. Subarachnoid hemorrhage (SH) with proven aneurysm was observed in 84 patients, brainstem hemorrhage (BH) - in 46 cases, and migraine - in 74 cases. Headache came on suddenly in 50 per cent of the patients with SH, in 35 per cent of the patients with BH and in 68 per cent of the patients with migraine. In the rest cases headache onset lasted for over one minute. Quantitative consciousness disturbances were found out in 26 per cent of the cases with SH, in 4 per cent of these with BH and in 16 per cent of these with migraine. Focal neurological symptoms were observed in 33, 9, and 22 per cent of the cases, respectively. Seizures and diplopia were established in SH only. Vomiting and physical effort preceding were reported in 69 and 50 per cent of the patients with SH, in 83 and 39 per cent of these with BH, and in 43 and 22 per cent of these with migraine. Aneurysmal SH was diagnosed in female patients with acute headache, seizures, reduced consciousness level or focal neurological symptoms, vomiting and physical effort. An aneurysmal rupture occurred when headache started several minutes after accident's onset.

**Key words:** headache, migraine, brainstem hemorrhage, subarachnoid hemorrhage, cerebral aneurysm

It is known that the aneurysmal subarchnoid hemorrhage (SH) begins with headache only in one third of the patients (1). Quantitative changes of consciousness or focal neurological signs can be observed in brainstem hemorrhages (BH) with good prognosis and in migraine as well (2,3). One should bear in mind the circumstance that no aneurysm can be proved in 10 per cent of SH patients (3). The objective of the present study is to analyze the leading symptoms of the onset of the aneurysmal SH in comparison with these of BH with good outcome and of migraine in the patients with severe headache.

## MATERIAL AND METHODS

The whole study covered a total of 2523 patients with acute cerebral blood flow disorders (ACBFD) hospitalized in the Second Clinic of Neurology, Department of Neurology, Prof. Paraskev Stoyanov Medical University of Varna during the period from 1985 till 1999. Two-hundred-and-four cases with sudden headache as an initial and only symptom of ACBFD were distinguished. All the patients were neurologically examined. Both computer tomography (CT) and angiography were used, too. Lumbar puncture was performed 12h after the onset of headache. Until the 24<sup>th</sup> hour

after admission to the Clinic, headache characteristic patterns were defined by using a standardized questionnaire. The subjective assessment of the onset of the headache fit was proved to be the most essential question (Table 1). An aneurysmal SH was observed in 84 patients (in 41 per cent of the cases), BH - in 46 patients with favourable outcome (in 23 per cent of the cases), and migraine with aura - in 74 patients (in 36 per cent of the cases).

The symptoms' ratio between the single groups was assessed by calculation of the relative risk (RR) and at confidence interval (CI) of 95 per cent.

## RESULTS AND DISCUSSION

One half of aneurysmal SH patients presented with acute headache several minutes after the onset of the brain accident only. All the patients with common preceding headache reported its outlined manifestation. A transitory reduction of consciousness level was established in 26 per cent of the patients with aneurysmal SH, in 4 per cent of these with BH and in 16 per cent of these with migraine. Besides in the cases with aneurysmal SH there were focal neurological symptoms, seizures, and diplopia. The rest symptoms of sensory disturbances, gate troubles, speech cessation and weakness were established in the patients of the three groups. The onset of the acute headache fit was in a ratio of 0,39 of the aneurysmal SH towards BH and migraine and in a ratio of 0,61 towards the quantitative reduction of consciousness level.

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Table 1. Headache characteristic patterns

| Parameters                                    | SH          |    | BH          |    | Migraine    |    | RR/CI 95%    |
|---|-------------|----|-------------|----|-------------|----|--------------|
|   | n           | %  | n           | %  | n           | %  | SH/migraine  |
| Number of patients                            | 84          | 41 | 46          | 23 | 74          | 36 |              |
| Gender - females                              | 48          | 57 | 12          | 26 | 26          | 35 | 1,3(0,8-2,2) |
| Mean age ( $\pm$ SD)                          | 49 $\pm$ 14 |    | 56 $\pm$ 11 |    | 36 $\pm$ 13 |    |              |
| Sensation of a 'stroke' in the occiput        | 42          | 50 | 2           | 4  | 12          | 22 |              |
| Onset of headache                             |             |    |             |    |             |    |              |
| - sudden                                      | 42          | 50 | 16          | 35 | 50          | 68 | 0,7(0,5-0,9) |
| - after 2-60 sec                              | 20          | 24 | 12          | 26 | 4           | 5  |              |
| - after 1-5 min                               | 16          | 19 | 16          | 35 | 14          | 19 | 1,3(0,6-2,9) |
| - after > 5 min                               | 6           | 7  | 2           | 4  | 6           | 8  |              |
| Pain intensity (1-10 points)                  | 10 (7-10)   |    | 10 (7-10)   |    | 9 (7-10)    |    |              |
| Number of patients with preceding headache    | 32          | 38 | 16          | 35 | 42          | 57 | 0,7(0,4-1,1) |
| Frequency of preceding headache (1-10 points) | 6 (4-10)    |    | 5 (1-9)     |    | 4 (1-7)     |    |              |
| Nausea  | 64          | 76 | 38          | 83 | 56          | 76 | 1,0(0,8-1,3) |
| Vomiting                                      | 58          | 69 | 38          | 83 | 32          | 76 | 1,7(1,1-2,5) |
| Preceding headache                            | 16          | 19 | 2           | 4  | 10          | 14 |              |
| Seizures                                      | 6           | 7  |             |    |             |    |              |
| Reduction of consciousness or unconsciousness | 22          | 26 | 2           | 4  | 12          | 16 | 1,1(0,5-2,4) |
| Transient focal symptoms                      | 28          | 33 | 4           | 9  | 16          | 22 | 1,1(0,5-2,4) |

Our investigation demonstrates that, according to its subjective assessment by the patients with aneurysmal SH, the headache appears after the first minute after the SH in one half of the cases. These data contradict the results about a sudden start of the headache fit in SH (4,5) as this symptom is observed in migraine, too. Therefore, the characteristic patterns of the headache could not be used to differentiate these two diseases. Only the epileptic seizures and diplopia are more common in aneurysmal SH, however, these symptoms cannot serve as a criterion for its differentiation from migraine and BH at all (3). The gender, vomiting, and physical effort detected from the anamnesis along with the transient reduction of consciousness level and focal neurological symptoms in our clinical analysis are emphasized in SH with a proved aneurysm (3).

## CONCLUSIONS

1. Our study indicates a suspicion about an aneurysmal rupture when the headache has lasted several minutes only, in females, with an anamnesis of quantitative consciousness disturbances, focal neurological symptoms, vomiting, and physical effort.
2. These signs could be used for the differentiation between SH and ACBFD with good prognosis and starting with headache.
3. In the clinical practice, the diagnosis of an acute headache necessitates the examination of the cerebrospinal fluid as well as CT and angiography.

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